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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,707	01/26/2004	Raymond Wellman	021331-000710US	9283

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EXAMINER

BRUENJES, CHRISTOPHER P

ART UNIT	PAPER NUMBER
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1772

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No.		Applicant(s)	
	10/765,707		WELLMAN ET AL.	
	Examiner		Art Unit	
	Christopher P. Bruenjes		1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15 and 27-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15 and 27-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1772

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 16, 2006 has been entered.

WITHDRAWN REJECTIONS

2. The 35 U.S.C. 102 rejections of claims 1-2, 5, 8, 10-11, 13-15, and 26 as anticipated by Bagnulo of record in the Office Action mailed April 11, 2006, Pages 3-5 Paragraph 7, have been withdrawn due to Applicant's amendments in the Paper filed October 16, 2006. Note, however, the limitation the reference is withdrawn for is considered new matter as shown below and if the limitations were deleted from the claims, the rejection would be reinstated.

Art Unit: 1772

3. The 35 U.S.C. 103 rejections of claims 3-4, 6-7, 9, 12, and 27-35 over Bagnulo in view of Shea et al, Nishino, Shea, and/or Williams of record in the Office Action mailed April 11, 2006, Pages 6-14 Paragraphs 9-14, have been withdrawn due to Applicant's amendments in the Paper filed October 16, 2006.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 15 and 27-47 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 15, the limitation "wherein the first duct and second duct each have a constant diameter from end to end" is new matter. It is not mentioned in the specification that the ducts have a constant diameter from end to end and none of

Art Unit: 1772

the drawings show an entire duct from end to end. It is well known in forming ducts to have ducts with different diameters from one end to the other end and without support for constant diameter it is not reasonable to one having ordinary skill in the art that the inventors at the time the application was filed had possession of the claimed limitation.

Regarding claims 34 and 44, the limitation "the slip collar is free of metal" is a negative limitation that does not have support in the original disclosure. The mere absence of a positive recitation is not a basis for exclusion. Even slip collars described in the specification formed of fiber reinforced plastic contain screws, which are made of metal.

Regarding claim 36, the limitation "wherein the duct has a constant diameter from the first end to a second end of the duct" is new matter. It is not mentioned in the specification that the duct has a constant diameter from end to end and none of the drawings show an entire duct from a first end to a second end. It is well known in forming ducts to have ducts with different diameters from one end to the other end and without support for constant diameter it is not reasonable to one having ordinary skill in the art that the inventors at the time the application was filed had possession of the claimed limitation.

Art Unit: 1772

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 15 and 27-37, 39, 41-44, and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al (USPN 5,961,154) in view of Shea (USPN 5,383,994).

Regarding claims 15 and 36, Williams et al teach a duct assembly comprising a slip collar (represented by the combination of reference numbers 20 and 60, Figure 2), a first duct (reference 68, Figure 2) including a first end inserted

Art Unit: 1772

into the first slot region and a second duct (reference number 70, Figure 2) including a second end inserted into the second slot region. The slip collar (the combination of reference numbers 20 and 60, Figure 2) comprises a tubular outer wall portion (reference number 20, Figure 2) and a tubular inner wall portion (reference number 60, Figure 2). An intermediate portion (reference number 62, Figure 2) formed of a circumferential rib on the surface of the tubular inner wall portion contacting the outer wall portion. Therefore, it is disposed between the tubular outer wall portion and the tubular inner wall portion. A slot region is defined by the tubular outer wall portion and the tubular inner wall portion on either side of the circumferential rib. The tubular inner wall portion and the intermediate portion comprise a fiber reinforced plastic material (col.7, 1.55). The tubular outer wall portion, the tubular inner wall portion, and the intermediate portion form an integral one-piece structure because as shown in Figures 7 and 7a, the outer wall portion, inner wall portion, and intermediate portion are all integrally bonded together by adhesive (col.8, 1.43-52). Note "integral one-piece structure" only requires that as a finished product the slip collar is integral and is one-piece. In this case, since the elements are bonded together by adhesive into one piece it forms a one-piece structure. Also

Art Unit: 1772

the definition of integral is "formed as a single unit", and the finally adhered slip collar of Williams is formed as a single unit. Therefore, the slip collar of Williams et al is an integral one-piece structure.

Williams et al fail to teach that the tubular outer wall portion comprises a fiber reinforced plastic material. However, Shea teaches that fiberglass reinforced plastics are substituted for any metals used in the formation of exhaust systems (col.1, 1.44-47). One of ordinary skill in the art would have recognized that fume duct joints and fume ducts themselves are made completely from fiberglass reinforced plastics in place of metals, as taught by Shea, because it is well known that fiber reinforced ducts are lighter than metal ducts.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to substitute a fiberglass reinforced plastic material for the metal outer tubular portion of Williams et al in order to provide a fire resistant outer portion that is lighter in weight, as taught by Shea.

Regarding claims 28, 30, 33-35, 37, 41, and 44, Williams et al fail to teach that the outer wall portion and inner wall portion comprise different polymeric materials. However, Shea teaches that two major problems are faced when using fiberglass

Art Unit: 1772

reinforced plastic materials and not any metal in fume ducts systems including fire resistance and chemical resistance. Shea goes on to teach that in order to overcome these issues the ducts are formed having an inner wall portion and outer wall portion in the same manner as the Williams et al fume duct and fume duct joint assembly. Shea teaches that the matrix used to form the outer wall portion is a phenol resorcinol type fire retardant resin and the inner tubular wall portion is formed of a vinyl ester (col.3, 1.9-15). One of ordinary skill in the art also would have recognized that the fume ducts as well as the joints require a fire resistant outer portion and chemical resistant inner portion in order to function adequately as a fume duct assembly, as taught by Shea.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to substitute a fiberglass reinforced phenol resorcinol material for the metal outer tubular portion of Williams et al in order to provide a fire resistant outer portion that is lighter in weight, as taught by Shea, and to use vinyl ester as the resin in the fiberglass reinforced material of Williams et al forming the inner portion of the fume duct joint, in order to provide chemical resistance, as taught by Shea. Thus, the slip collar of Williams and Shea combined is free of metal.

Art Unit: 1772

Regarding claim 39, the tubular inner wall portion is shorter than the tubular outer wall portion (Figure 7).

Regarding claims 42-43, the slip collar further comprises an adhesive composition (reference number 94, Figure 7) comprising novolac or epoxy resin in the slot region (col.4, 1.2-4).

Regarding claims 27 and 29, the tubular outer portion includes apertures (reference number 38, Figure 1) and set screws disposed in the apertures (Figure 1), and the first and second ducts comprise a fiber reinforced plastic material (col.4, 1.12-15).

Regarding claims 31 and 32, the thickness of the outer wall portion is within the claimed range of 3/16-inch to about 1-1/2 inches (col.7, 1.18-24), and a first adhesive composition is in the first slot region and a second adhesive composition in the second slot region (col.4, 1.2-4 and reference number 94, Figure 7).

Regarding claims 46-47, the limitation that the slip collar is formed first and after the slip collar is formed the duct(s) are inserted into the slot region(s) are process limitations describing the order in which the final assembly is formed. Process limitations are only given patentable weight in an article claim insofar as the structure that process produces.

Art Unit: 1772

In this case, the order in which the elements of the assembly are formed does not substantially change the structure of the article. When an article made by a different process is found to be substantially the same, the burden is shifted to the applicant to show an unobvious difference. To show an unobvious difference applicant must provide evidence such as unexpected results provided by forming the article with the different process.

9. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al in view of Shea as applied to claim 36 above, and further in view of Shea et al (USPN 5,505,497).

Williams et al and Shea teach all that is claimed in claim 36 as presented above, but fail to teach that the slip collar has only one slot region. However, Shea et al teach that it is well known in the art to place two U-shaped elements around the ends of two ducts to be joined in order to form a leak proof joint that is resistant to fire and chemical corrosion from gases and/or condensate within the duct sections by bonding the two U-shaped elements together (see abstract). One of ordinary skill in the art would have recognized that once the two U-shaped elements each being a slip collar having only one slot

Art Unit: 1772

region are bonded together they form the same structure as the single slip collar having two slot regions. Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to form the slip collar of Williams et al as two separate slip collars each having only one slot region in order to form a duct joint collar assembly, in which the slip collars can be bonded to the ends of the duct before bonding the ducts together, which would leave only the step of bonding the two slip collars together at the site of assembly, as taught by Shea et al.

Thus, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to form the slip collar of Williams et al as two separate slip collars having one slot region, in order to form a duct joint collar assembly that enables more of the steps of joining two ducts together to be completed before arriving at the assembly sight where the ducts will be joined, as taught by Shea et al.

10. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al in view of Shea as applied to claim 36 above, and further in view of Nishio (USPN 6,045,164).

Williams et al and Shea teach all that is claimed in claim 36 as presented above, but fail to teach that the tubular inner

Art Unit: 1772

wall portion comprises a fluoropolymer material. However, Williams et al teach that the fume duct joint is used to join fume ducts that are used to carry corrosive chemicals and that the ducts and joints must be chemical resistant even at high temperatures (col.1, 1.37-44). Nishio teaches that fluoropolymers such as polytetrafluoroethylene are superior in resistance to chemicals and heat (col.4, 1.43-53). One of ordinary skill in the art would have recognized that fluoropolymers that are superior in resistance to chemicals and heat would be beneficial in use in forming the chemical resistant portion of a fume duct joint. One of ordinary skill in the art would have also recognized that Williams et al and Nishio are analogous insofar as both references are concerned with joints between tubular articles made of resins that require chemical resistance.

Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to form the tubular inner wall portion of Williams et al so that it includes a fluoropolymer material, since Williams et al teaches that the inner wall portion must be chemical resistant because corrosive chemicals pass through the inside the duct system and since Nishio teaches that fluoropolymers are well

Art Unit: 1772

known in the art of tube joints and connectors to be chemical and heat resistant.

11. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al in view of Shea as applied to claim 36 above, and further in view of Narukawa et al (USPN 4,433,020).

Williams et al and Shea teach all that is claimed in claim 36 as presented above, but fail to teach that the fiberglass reinforced plastic material comprises chopped strand mat. However, Narukawa et al teach that when forming fiberglass reinforced plastics in the formation of exhaust ducts the glass fibers are prepared from chopped strands (col.1, 1.8-12, col.2, 1.55-56, and col.8, 1.25-30 and 55-59). Therefore, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to form fiberglass reinforced plastics used in the formation of exhaust ducts from chopped strands, as taught by Narukawa et al.

Thus, it would have been obvious to one having ordinary skill in the art at the time Applicant's invention was made to form the fiberglass reinforced slip collar of Williams and Shea from chopped strands because they are a common method of forming fiberglass reinforced plastics for use in the formation of

Art Unit: 1772

exhaust ducts, in which the slip collar is used, as taught by Narukawa et al.

Response to Arguments

12. Applicants arguments regarding the 35 U.S.C. 102 and 103 rejections over claims 1-15 and 26-35 over Bagnulo alone or in combination with Shea et al, Nishio, Shea, and/or Williams have been considered but are moot since the rejections have been withdrawn.

13. Applicant's arguments regarding the 35 U.S.C. 103 rejections of claims 15 and 26-35 over Williams in view of Shea have been considered but they are not persuasive.

In response to Applicant's argument that Williams and the secondary references fail to teach a slip collar including "an integral one-piece structure". The definition of integral is "elements formed as a single unit". The slip collar of Williams as an element of a duct assembly is an integral product, because it is formed as a single unit after the adhesive bonds the different elements together. In the same manner, "one-piece structure" requires that the article be formed as one-piece and not separable into individual components. The slip collar as an element of a duct assembly, is one-piece, it cannot be divided

Art Unit: 1772

into pieces without destroying the collar. Whether the slip collar prior to being a part of the claimed duct assembly was more than one-piece is not germane to the issue of whether the claimed duct assembly is patentable, absent evidence showing that the specific intermediate article or method steps of producing the claimed duct assembly forms an unobvious difference between the final product of the claimed duct assembly and the prior art duct assembly.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Shea teaches that the trend in the industry is to replace metal with fiberglass reinforced plastics in the construction of exhaust systems. Furthermore, it is known in the art that fiberglass reinforced plastic is lighter than metal. Therefore, in order to continue the trend of replacing metal with fiberglass reinforced plastics in the

Art Unit: 1772

construction of exhaust systems, as taught by Shea, and with the knowledge that this substitution would make the ducts lighter, it would have been obvious to one having ordinary skill in the art to substitute the FRP of Shea for the metal outer portion of the slip collar of Williams.

In response to Applicant's argument that the Plecnik Declaration shows advantages of the claimed "one piece" construction over the multi-piece construction of Williams, the slip collar of Williams when formed as an element of the duct assembly is no longer a multi-piece construction. Although the slip collar itself may have at one point been formed of multiple pieces, the slip collar of the duct assembly is a one-piece construction in the same manner as the claimed slip collar because neither could be broken apart into separate pieces without destroying the collar.

In response to Applicant's arguments that the Plecnik declaration provided evidence of unexpected results, unexpected results must be established by factual evidence (MPEP 716.01(c)(I)). Although opinions by a third party declarant with relevant knowledge is evidence, it is opinion evidence (MPEP 716.01(c)(III)) not factual evidence such as experimental data as required for showing unexpected results. Furthermore, it should be noted that the objective evidence provided in a

Art Unit: 1772

declaration is evidence supporting patentability, but must be weighed against evidence supporting the *prima facie* case. In this case, the objective evidence was not enough to outweigh the *prima facie* showing of obviousness.

In response to Applicant's argument that the asserted advantages have not be considered, these advantages were answered generally in response to the declaration in the previous office Action. However, I will answer them more specifically below, with regard to how the advantages are not to an extent that the difference is really unexpected. First, the claimed invention is a duct assembly, which includes the slip collar after has already been fully assembled with the duct or ducts. Therefore, the comparison advantages between the claimed assembly and the Williams assembly must be made based on the assembly. Whether the process of forming the duct assembly can be done faster is not germane to the patentability of the duct assembly, because the final duct assembly has the same capabilities regardless of how the assembly was put together. The slip collar of Williams and Shea are also strong and contain fire and chemical resistance. No factual evidence has been provided or strength or resistance values claimed showing an unobvious difference over Williams and Shea. The slip collar of Williams also has inner and outer wall portions.

Art Unit: 1772

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Bruenjes whose telephone number is 571-272-1489. The examiner can normally be reached on Monday thru Friday from 8:00am-4:30pm.

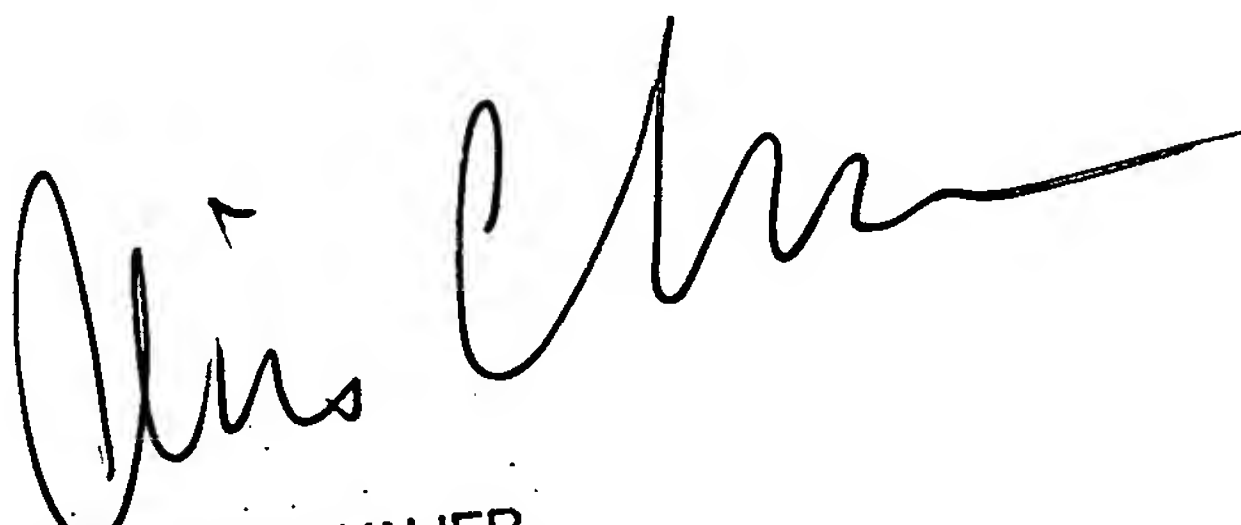
Art Unit: 1772

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher P Bruenjes
Examiner
Art Unit 1772

CPB
CPB
January 4, 2007


ALICIA CHEVALIER
PRIMARY EXAMINER